

TCEQ Interoffice Memorandum

TO: Chief Clerk

DATE: March 29, 2011

THRU: Kellye Rila, Section Manager
Water Rights Permitting & Availability Section

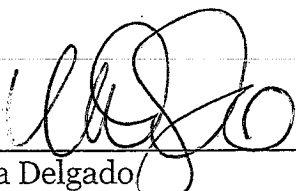
FROM: Iliana Delgado
Water Rights Permitting Team

SUBJECT: Lower Colorado River Authority
Docket # 2006-1819-WR
WRPERM 5731
CN 600253637, RN 104090238
Application No. 5731 for a Water Use Permit
TWC §§11.121, 11.085, Requiring Mailed and Published Notice
Colorado River Basin
Colorado, Wharton, and Matagorda Counties

The Proposal for Decision for the Lower Colorado River Authority's (LCRA) application for Water Rights Permit No. 5731 was presented to the Commission on February 9, 2011. The Administrative Law Judge recommended that a draft permit that had been approved by all remaining parties in the hearing except the Executive Director be granted by the Commission. The Commission continued the matter for settlement discussions among the Executive Director, the LCRA, and the remaining protestant parties in this proceeding.

The Executive Director and the LCRA and other remaining protestant parties in this case have agreed to the draft permit attached to this memorandum. Also attached is the Executive Director's Request for Information sent to the other parties on February 16, 2011, and the parties' response dated November 18, 2011. After these communications, the parties met on March 7, 2011 and later agreed to the provisions of the draft permit.

The Executive Director believes that the parties have shown that the draft permit is based on reasonable science and that the terms of the draft permit, although complex, can be implemented through an accounting plan when LCRA amends this permit in the future.



Iliana Delgado
Water Rights Permitting Team

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



WATER USE PERMIT

APPLICATION NO. 5731

PERMIT NO. 5731

TYPES §§11.121, 11.085

Owner:	Lower Colorado River Authority	Address:	P.O. Box 220 Austin, Texas 78767
Filed:	February 28, 2001	Granted:	
Purpose:	Municipal, Industrial, and Agricultural	Counties:	Colorado, Wharton, Matagorda
Watercourse:	Colorado River	Watershed:	Colorado River Basin, Brazos River Basin, Lavaca River Basin, Brazos- Colorado Coastal Basin, and Colorado-Lavaca Coastal Basin

WHEREAS, the Lower Colorado River Authority (LCRA), applicant, seeks authorization to divert, store, and use those excess flood waters and those unappropriated flows of the Colorado River Basin downstream of O.H. Ivie Reservoir and downstream of Lake Brownwood in an amount not to exceed 853,514 acre-feet of water per year; and

WHEREAS, the applicant seeks to divert and use the requested appropriation of water at nine existing diversion points downstream of the USGS Gage 08161000, Colorado River at Columbus, Texas, in Colorado County at a maximum combined diversion rate of 40,000 cfs; and

WHEREAS, the applicant seeks to construct an unspecified number of off-channel reservoirs within Colorado, Wharton, and Matagorda Counties with a maximum combined storage capacity of 500,000 acre-feet of water and maximum combined surface area of 25,408 acres; and

WHEREAS, in order to estimate the maximum total surface area of the reservoir, the maximum evaporative losses from the reservoirs, and the maximum total yield from the reservoirs, the applicant indicates that for those purposes assumptions were made

that at the maximum normal operating level of the reservoirs the approximate depth of the reservoirs would be no more than 45 feet and no less than 20 feet; and

WHEREAS, the applicant indicates that the estimated combined maximum annual evaporation from the off-channel reservoirs would be 82,264 acre-feet of water, based on a maximum surface area estimated of the reservoirs and assuming an approximate water depth of 20 feet in the reservoirs. The maximum combined annual diversion of water from the off-channel reservoirs would not exceed 327,591 acre-feet of water based on an assumed maximum approximate water depth of 45 feet within the reservoirs, at the maximum normal operating level, with a maximum combined diversion rate from the off-channel reservoirs of 4,000 cfs (1,795,200 gpm). The applicant estimates that the maximum monthly demand from the off-channel reservoirs would be 110,000 acre-feet based on an assumed capability of diverting one third of the annual total of 327,591 acre-feet in a single month; and

WHEREAS, the applicant is seeking authorization to use the water requested in this application anywhere within its authorized water service area within the Colorado River Basin, Brazos River Basin, Lavaca River Basin, Brazos-Colorado Coastal Basin, and the Colorado-Lavaca Coastal Basin and/or such other areas that hereinafter may be authorized by law for municipal, industrial, and agricultural purposes; and

WHEREAS, this application is subject to the Texas Coastal Management Program (CMP) and must be consistent with the CMP goals and policies; and

WHEREAS, the Texas Commission on Environmental Quality finds that jurisdiction over the application is established; and

WHEREAS, the Executive Director recommends special conditions be added for the protection of instream uses and beneficial inflows; and

WHEREAS, the applicant requests that a special condition be included to address the priority of this right in relation to Colorado River Municipal Water District and Brown County Water Improvement District No. 1 in accordance with LCRA's existing agreements with the districts; and

WHEREAS, the Texas Parks and Wildlife Department, Coastal Conservation Association, Matagorda Bay Foundation, National Wildlife Federation, Sierra Club, STP Nuclear Operating Company, and the City of Austin (collectively the "Protesting Parties") were granted a contested case hearing on the application; and

WHEREAS, as a result of negotiations with the Protesting Parties, applicant has agreed to a reduction in the number of authorized diversion points from nine to five diversion points, to a reduction of the maximum combined diversion rate from 40,000 cfs to 10,000 cfs, and to the inclusion of several terms and conditions, particularly those related to instream flows and beneficial inflows; and

WHEREAS, the Texas Commission on Environmental Quality finds that the issuance of the permit is consistent with the goals and policies of the Texas CMP; and

WHEREAS, the Commission has complied with the requirements of the Texas Water Code and Rules of the Texas Commission on Environmental Quality in issuing this permit;

NOW, THEREFORE, Water Use Permit No. 5731 is issued to the Lower Colorado River Authority subject to the following terms and conditions:

1. IMPOUNDMENTS

Permittee is authorized to construct a series of off-channel reservoirs within Colorado, Wharton, and Matagorda Counties with a maximum combined storage capacity of 500,000 acre-feet of water and a maximum combined surface area of 25,408 acres.

2. USE

Permittee is authorized to divert an amount not to exceed 853,514 acre-feet of water per year from five diversion points described herein for storage in the off-channel reservoirs and subsequent diversion of a maximum of 327,591 acre-feet of water per year from those reservoirs for use anywhere within Permittee's currently authorized water service area within the Colorado River Basin, Brazos River Basin, Lavaca River Basin, Brazos-Colorado Coastal Basin, and the Colorado-Lavaca Coastal Basin for municipal, industrial, and agricultural purposes.

3. DIVERSION

A. Permittee is authorized to divert from the following authorized existing diversion points downstream of the USGS Gage 08161000, Colorado River at Columbus, Texas:

- (i) At a point of the west bank of the Colorado River in the Samuel Kennelly Grant, Abstract 30, Colorado County, also being Latitude 29.515322°N and Longitude -96.408604°W, and authorized in Certificate of Adjudication No. 14-5434C.
- (ii) At a point of the east bank of the Colorado River in the A.W. McLain and James McNair Grant, Abstract 33, Colorado County, also being Latitude 29.569729°N and Longitude -96.401861°W, and authorized in Certificate of Adjudication No. 14-5475.
- (iii) At a point of the east bank of the reservoir on the Colorado River in the Sylvenus Castleman Grant, Abstract 11, Wharton County, also

being Latitude 29.19271°N and Longitude -96.07155°W, and authorized in Certificate of Adjudication No. 14-5476.

- (iv) At a point of the east bank of the reservoir on the Colorado River in the John F. Bowman and Henry Williams Grant, Abstract 9, Matagorda County, also being Latitude 28.983421°N and Longitude -95.999755°W, and authorized in Certificate of Adjudication No. 14-5476.
- (v) At a point of the west bank of the reservoir on the Colorado River in the Thomas Cayce Grant, Abstract 14, Matagorda County, also being Latitude 28.979813°N and Longitude -96.011406°W, and authorized in Certificate of Adjudication No. 14-5476.

B. Maximum combined diversion rate: 10,000 cfs (4,488,300 gpm).

4. CONSERVATION

Permittee shall implement a water conservation plan that continues to provide for the utilization of reasonable practices, techniques and technologies, for each category of authorized use, that reduce or maintain the consumption of water, prevent or reduce the loss or waste of water, improve efficiency in the use of water, and increase the recycling and reuse of water, so that a water supply is made available for future or alternative uses. The practices and technologies used shall be designed to achieve a level of efficiency of use for each category of authorized use that is equal to or greater than the level provided for in Permittee's most recent water conservation plan on file with the Commission as of the date of the issuance of this permit. In selecting practices, techniques, and technologies to be used, Permittee shall consider any appropriate best management practices that are identified in the most recent version of the Water Conservation Best Management Practices Guide produced by the Texas Water Development Board or any successor document. In every wholesale water contract or contract extension or renewal entered into on or after this permit is issued, Permittee shall continue to include a requirement that each successive wholesale customer develop and implement conservation measures consistent with the requirements of this provision. If the customer intends to resell the water, then the contract for resale of the water shall have water conservation requirements so that each successive wholesale customer in the resale of the water is required to implement water conservation measures consistent with the requirements of this provision. Those requirements include insuring that each successive wholesale customer will have a publicly accessible water conservation plan with specific, quantified 5-year and 10-year targets for water savings and will provide publicly accessible reports to the Permittee at five-year intervals summarizing the progress toward meeting those targets.

5. TIME PRIORITY

- A. The time priority for this authorization is February 28, 2001.
- B. This permit is junior in priority to any claim by the Colorado River Municipal Water District (CRMWD) or Brown County Water Improvement District No. 1 (BCWID) on surface waters of the Colorado River watershed imported into or originating in and above O.H. Ivie Reservoir and Lake Brownwood, as well as the existing rights of any other holder of water rights above Lake Brownwood or O.H. Ivie Reservoir and shall not constitute any limitation upon the granting of new permits to CRMWD or BCWID or amendments to existing water rights of the CRMWD consisting of Certificate Nos. 14-1002, as amended, 14-1008, as amended, 14-1012 and 14-1018 and Permits 3676, as amended, 5457, and 5480, or amendments to the existing water right of BCWID consisting of Certificate No. 14-2454 by the Commission for the impoundment, diversion, and use, within the Colorado River watershed, of waters of the Colorado River imported into or originating in or above O.H. Ivie Reservoir and Lake Brownwood.

6. SPECIAL CONDITIONS

- A. Instream Flow Criteria
- (i) Diversions authorized under this permit at diversion points upstream of USGS Gage 08162000, Colorado River at Wharton, Texas, shall only occur when: (a) streamflow at USGS Gage 08162000, Colorado River at Wharton, Texas is above the applicable flows listed in Table 1; and (b) diversions will not reduce streamflow at USGS Gage 08162000, Colorado River at Wharton, Texas to less than such flows.

Table 1: Monthly Instantaneous Instream Flow Criteria at USGS Gage 08162000, Colorado River at Wharton, Texas

Month	Flow (cfs)
January	838
February	906
March	1036
April	1011

May	1397
June	1512
July	906
August	522
September	617
October	749
November	764
December	746

- (ii) Any diversions under this permit at a diversion point located downstream of USGS Gage 08162000, Colorado River at Wharton, Texas, shall be subject to the passage beyond the diversion point of those instream flows identified in Table 1, Special Condition 6.A.(i). The accounting plan shall include provisions establishing a mechanism for assessing compliance with this requirement.

B. Channel Maintenance

A qualifying channel maintenance flow event is defined as an event that begins with a flow of at least 27,000 cfs, as measured at USGS Gage 08161000, Colorado River at Columbus, Texas, has a duration of 48 hours, and includes flows below 27,000 cfs that occur within the 48-hour period following the initial 27,000 cfs flow. If a qualifying channel maintenance flow event has not occurred within the last 24 months, and has not been allowed to pass the diversion points, Permittee's diversions during the first 48 hours after the qualifying channel maintenance flow event has reached the diversion point shall not reduce streamflow below the applicable diversion point to less than the equivalent of 27,000 cfs at USGS Gage 08161000, Colorado River at Columbus, Texas. The equivalent flow at each diversion point shall be determined in the accounting plan required by Special Condition 6.F. and include an adjustment for attenuation between the USGS Gage 08161000, Colorado River at Columbus, Texas, and the applicable diversion point.

C. Beneficial Inflow Criteria

- (i) Permittee shall only divert when one or more of the Beneficial Inflow Criteria as defined in the following Special Condition 6.C.(ii),

(iii), and (iv) are satisfied. Diversions which are authorized under the specific criteria in Special Condition 6.C.(ii) or 6.C.(iii) are not subject to the limitations included in Special Condition 6.C.(iv).

(ii) Seasonal Inflow Criteria

- (a) Beneficial Inflow Criteria shall be deemed satisfied for purposes of authorizing diversions under this permit, subject to the limitations in Special Condition 6.C.(ii)(b) (Severe Bay Drought), if the seven-day average salinity for the Shellfish Marker B Transect (as defined by Special Condition 6.H) is 23 parts per thousand (ppt) or less and the total Colorado River inflow to Matagorda Bay in the preceding 60 days exceeds the values in Table 2.

Table 2: Seasonal Inflow Criteria

Diversions occurring on any day during the months	Minimum preceding 60 day inflow
March, June	365,000 acre-feet
April, May	400,000 acre-feet
July, August, September, October	260,000 acre-feet
November, December, January, February	190,000 acre-feet

(b) Severe Bay Drought

- (1) "Cumulative Salinity Departure" (CSD) shall be calculated as set forth in Special Condition 6.F., Accounting Plan.
- (2) At any time that CSD exceeds 2,200, the Seasonal Inflow Criteria in Special Condition 6.C.(ii)(a) shall not be used to satisfy the Beneficial Inflow Criteria.
- (3) CSD shall be reset to zero if any of the following events occur:

- (A) Total Colorado River inflows into Matagorda Bay for a 90-day period that ends on any day during the following calendar months are greater than or equal to the corresponding values:
 - i.) March-October: 430,000 acre-feet;
 - ii.) November-February: 410,000 acre-feet.
 - (B) The average salinity at the Shellfish Marker B Transect (as defined by Special Condition 6.H) over the preceding 90-day period is 15 ppt or less; or
 - (C) Total Colorado River inflows to Matagorda Bay for the preceding two consecutive 90-day periods are greater than or equal to 310,000 acre-feet for each such period.
- (4) If a CSD reset occurs from a value greater than 2200 as a result of Special Condition 6.C.(ii)(b)(3)(A) or (B), during the 60-day period immediately following the CSD reset, the Beneficial Inflow Criteria may be deemed satisfied using the Seasonal Inflow Criteria in Special Condition 6.C.(ii)(a) only if a Continuing Drought Reset Criterion is also satisfied. The Continuing Drought Reset Criterion is satisfied if the Colorado River inflows to Matagorda Bay during any 30-day period that ends on any day in the following calendar months are greater than or equal to the corresponding values:
 - (A) March – October: 135,000 acre-feet;
 - (B) November – February: 105,000 acre-feet.
- (iii) Low-Salinity Condition. If the 24-hour average salinity as calculated in accordance with Special Condition 6.F., Accounting Plan, for the Shellfish Marker B Transect (as defined by Special Condition 6.H) is 5 ppt or less the Beneficial Inflow Criteria shall be deemed satisfied for the following 24 hours for purposes of authorizing diversions under this permit.
- (iv) High-Flow Scalping. If the flow at the diversion point exceeds 6,000 cfs on a daily average basis, the Beneficial Inflow Criteria shall be deemed satisfied for purposes of authorizing diversions under this permit, subject to the following limitations:

- (a) Permittee is authorized to divert, under this permit, on a daily average basis, an amount no greater than the percentages of flow shown in Table 3.

Table 3: Authorized diversion amounts under High-Flow Scalping

Status under Permittee's Adopted Drought Contingency Plan	Bay Condition	
	CSD < 3,800	CSD > 3,800
Firm customers have not been asked to implement mandatory restrictions	Divert up to 35% of flow above 6,000cfs	No diversions
Firm customers have been asked to implement mandatory restrictions	Divert up to 60% of flow above 6,000cfs	Divert up to 35% of flow above 6,000cfs

- (b) If a high-flow pulse of at least 8,000 cfs on a daily average basis has not occurred for two consecutive days at USGS Gage 08162000, Colorado River at Wharton, Texas, in the preceding 18 months, diversions as described in Special Condition 6.C.(iv)(a) are authorized only to the extent that diversions do not reduce daily average flow below 8,000 cfs at the diversion point.
- (v) Adjustment to Seasonal Inflow Criteria
- (a) Permittee shall perform a Salinity Analysis as described in this Special Condition 6.C.(v)(a) within six (6) months after the tenth anniversary after Permittee initiates diversions under this permit.
- (1) Permittee shall compile a record of the daily salinity for the Shellfish Marker B Transect (as defined by Special Condition 6.H) for the days in which the Seasonal Inflow Criteria in Table 2 under Special Condition 6.C.(ii)(a) were satisfied, with such daily values grouped into the periods March through June, July through October, and November through February. The record shall cover the period from

January 1, 2005 through December 31 of the year prior to the analysis being triggered.

- (2) For each of the periods March through June, July through October, and November through February, Permittee shall calculate the Percentage Exceedance, which shall be the percentage of days that the salinity at Shellfish Marker B Transect (as defined by Special Condition 6.H) exceeded the values in Table 4 out of the days in which the Seasonal Inflow Criteria in Table 2 under Special Condition 6.C.(ii)(a) were satisfied.

Table 4: Salinity Trigger for Adjusting Seasonal Inflow Criteria

Period	Salinity
March through June	18.5 ppt
July through October	21.5 ppt
November through February	23 ppt

- (b) The analysis required under Special Condition 6.C.(v)(a) shall be repeated on a recurring basis every 10 years following the tenth anniversary after Permittee initiates diversions under this permit.
- (c) If the submission of a permit amendment application pursuant to Special Condition 6.E. occurs at least 5 years after the issuance of this permit, an initial Salinity Analysis as set out in Special Condition 6.C.(v)(a) shall be undertaken prior to the submission of that permit amendment application.
- (d) Permittee shall provide the Executive Director with the results of any Salinity Analysis required by Special Condition 6.C.(v)(a)(2) or 6.C.(v)(c) and, shall also provide documentation of consultation with all entities named as parties to the contested case hearing on the application for this permit and any comments received from those entities regarding the Salinity Analysis.
- (e) The Commission may adjust the Seasonal Inflow Criteria in

Table 2, Special Condition 6.C.(ii)(a), based on the Salinity Analysis required by this Special Condition 6.C.(v) only if the Percentage Exceedance as described in Special Condition 6.C.(v)(a)(2) for any single period is greater than 30 percent. In making an adjustment, the Commission may reallocate and, if appropriate, increase the Seasonal Inflow Criteria for the individual periods in Table 2 under Special Condition 6.C.(ii)(a) such that the cumulative total of the Seasonal Inflow Criteria does not exceed the cumulative total of the Seasonal Inflow Criteria in the original permit by more than 40,000 acre-feet. For purposes of any such adjustment, the months of March, April, May, and June shall be treated as a single period such that an increase of 20,000 acre-feet in each of those months, for example, would count as an increase in the Seasonal Inflow Criteria of 20,000 acre-feet. Other than an adjustment, if any, associated with consideration of a permit amendment application pursuant to Special Conditions 6.E. and 6.C.(v)(c), adjustments pursuant to this Special Condition shall be made only if Permittee's installed diversion capacity under this permit exceeds 2500 cfs or if total diversions pursuant to this Permit have exceeded 100,000 acre-feet in any calendar month. In determining whether any adjustment to the Seasonal Inflow Criteria is appropriate under this Special Condition, the Commission shall also consider, at minimum:

- (1) the documentation and comments submitted by Permittee pursuant to Special Condition 6.C.(v)(d) of this section; and
 - (2) any changes to the condition of Matagorda Bay, including changes to the configuration of the bay.
- (f) Other than adjustments under Special Condition 6.C.(v)(c), adjustments to the Seasonal Inflow Criteria as a result of this Special Condition 6.C.(v) may be made no more frequently than once every ten (10) years and shall be considered through an expedited public comment process similar to that contemplated by the rules adopted by the Commission to implement Water Code § 11.1471(e-1). Any changes to the Seasonal Inflow Criteria as a result of this process shall be reflected in an amended permit.

D. Riparian Management Plan

Prior to diversions of water authorized by this permit, Permittee shall

develop a Riparian Management Plan (RMP) and submit the plan to the Executive Director for approval. The RMP shall:

- (i) Identify public lands owned by Permittee between Columbus and the lower-most diversion point with significant riparian value; and
- (ii) Outline a plan for maintaining the riparian ecosystem functions of those lands, including provisions for long-term monitoring.

E. Reservoir Permitting and Construction

- (i) Within ten (10) years of the initial issuance of this permit, and prior to diversion of water from the Colorado River pursuant to this permit or impoundment in the off-channel reservoir(s) authorized under this permit, Permittee shall apply for an amendment to this permit to either: (a) authorize specific off-channel reservoir(s); or (b) extend the time for filing an amendment to authorize specific off-channel reservoir(s) as set forth in this section.
- (ii) Any amendment to authorize specific off-channel reservoir(s) shall address, among other relevant issues, reasonable measures to minimize impacts to aquatic resources due to entrainment and impingement; mitigation requirements pursuant to Section 11.152, Tex. Water Code; and issues related to the impacts, if any, to water quality or instream flows of any tributaries to the Colorado River affected by the proposed reservoir(s). At the time these reservoirs are permitted, time limitations for the commencement and completion of construction will be applied.
- (iii) Any application to amend this permit to extend the deadline for filing an amendment to authorize specific off-channel reservoir(s) shall explain: (a) why the amendment to extend the time should be granted; and (b) why the permit should not be cancelled
- (iv) If Permittee has not applied for an amendment to this permit under Special Condition 6.E.(i) above within the specified deadline, Permittee shall abandon the permit.
- (v) Any application for an amendment as described in Special Condition 6.E. shall require public notice and an opportunity to request a contested case hearing. If the Commission denies such an application for an amendment or an extension of time, the Commission may also concurrently determine whether to initiate cancellation proceedings under Texas Water Code, Chapter 11, Subchapter E for all or part of the permit.

F. Accounting Plan

- (i) Permittee shall include with any application under Special Condition 6.E.(i) to amend this Permit to authorize specific off-channel reservoirs a proposed daily accounting plan that includes, at a minimum, the following:
 - (a) An accounting, by priority date and amount, for all water that will be diverted from the Colorado River into the off-channel reservoir(s) authorized under this Permit;
 - (b) An accounting, by date and amount, for all water diverted from the off-channel reservoir(s) authorized under this permit;
 - (c) An accounting, by date and amount, of water allowed to pass downstream to ensure compliance with Special Conditions 6.A., 6.B., and 6.C related to protection of instream flows and beneficial inflows, including, at a minimum;
 - (1) A description of the stage data and rating information Permittee will use to determine compliance with the requirements of this Permit. In determining compliance with requirements under this permit, Permittee may rely on stage data obtained from the gaging station(s) jointly maintained by the U.S. Geological Survey (USGS) and Permittee. If the ratings used to convert stage to flow published by Permittee and the USGS are not identical at the time these requirements are implemented by Permittee, Permittee may exercise its discretion in relying on the latest updated rating of the gage(s).
 - (2) For purposes of determining compliance with Special Condition 6.B. ("Channel Maintenance"), flows in the Colorado River shall be measured at USGS Gage 08161000, Colorado River at Columbus, Texas, and the nearest USGS Gage located upstream of the actual diversion point of water appropriated under this permit, with appropriate adjustments, as set forth in the accounting plan, that account for travel time, downstream diversions, and lateral inflows reasonably estimated by Permittee, pursuant to a method set forth in the accounting plan, to have occurred along the Colorado River downstream of the USGS Gage 08161000, Colorado River at Columbus, Texas, and

upstream of the diversion point(s) used by Permittee.

- (3) For purposes of determining compliance with Special Condition 6.C., ("Beneficial Inflows Criteria"), the plan shall include a description of how Permittee will determine Colorado River inflow to Matagorda Bay, including the circumstances under which Permittee will use flow measured at USGS Gage 08162500, Colorado River near Bay City, Texas, or, when appropriate, at Permittee's Lane City gage. (Permittee's Lane City gage is located on the Colorado River, Latitude 29.19028°N and Longitude - 96.0692°W, approximately 3 miles southwest of Lane City, Texas.)

- (d) An accounting of the salinity measurements and calculations necessary to determine compliance with Special Conditions 6.C.(ii), (iii) and (v), subject to the following requirements:

- (1) Beginning at such time that Permittee initiates diversions under this permit, Permittee shall measure salinity on at least an hourly basis using two salinity monitoring instruments at the West Bay @ Tripod and two salinity monitoring instruments at West Bay @ Shellfish Marker B (as identified under Special Condition 6.H).
- (2) Instrument Reliability. If the daily average salinity varies by greater than 3 ppt between two instruments at the same location, Permittee shall inspect the instruments and repair or replace the instruments, if necessary, within three business days.
- (3) The calculation of the average salinity across the Shellfish Marker B Transect (as defined by Special Condition 6.H) shall be as follows:
 - (A) A daily average salinity value shall be calculated for each individual salinity monitoring instrument.
 - (B) The daily average salinity at the West Bay @ Tripod (as identified under Special Condition 6.H) shall be calculated as the average of the daily average salinity for the two salinity instruments at that location; and the daily

average salinity at West Bay @ Shellfish Marker B (as identified under Special Condition 6.H) shall be calculated as the average of the daily average salinity for the two salinity instruments at that location.

- (C) The Shellfish Marker B Transect average salinity shall be calculated as the average of the daily average salinity at the West Bay @ Tripod and West Bay @ Shellfish Marker B locations as such locations are identified under Special Condition 6.H. However, if the salinity instruments at either the West Bay @ Tripod or West Bay @ Shellfish Marker B are outside of the range specified under Special Condition 6.F.(i)(d)(2), the transect salinity shall be established as the daily average salinity at the other location.
- (D) For purposes of determining the 24-hour average salinity under Special Condition 6.C.(iii), the accounting plan shall specify the time of day at which the 24-hour period begins and ends.
- (e) An accounting of Permittee's calculation of Cumulative Salinity Departure, for purposes of Special Conditions 6.C.(ii)(b) and 6.C.(iv), subject, at a minimum, to the following requirements:
 - (1) When average daily salinity at the Shellfish Marker B Transect (as defined by Special Condition 6.H) exceeds 23 ppt, the absolute value of the difference between the salinity value and 23 ppt shall be added to a running total of "Cumulative Salinity Departure" (CSD).
 - (2) When average daily salinity is below 23 ppt, the absolute value of the difference shall be subtracted.
 - (3) If the resulting CSD would otherwise be a negative value, it shall be set to zero.
 - (4) All CSD calculations should be done on a daily basis.
- (ii) Permittee shall file with any submission of a proposed accounting plan or any proposed substantive revision thereof, documentation of consultation with all entities named as parties to the contested case hearing on the application for this permit and of any comments

received from those entities on the contents of the accounting plan. The Executive Director shall consider those comments in determining the adequacy of the accounting plan or any proposed substantive revision.

- (iii) Permittee shall maintain the approved daily accounting plan in electronic format and, except as may be restricted by other local, state, or federal law, make it available to the general public during normal business hours and to the Executive Director upon request.
- (iv) If at any time Permittee intends to store other waters, either from the Colorado River (authorized by other water rights) or from other previously authorized sources, for subsequent storage in and diversion from the off-channel reservoir(s) authorized under this permit, Permittee shall submit, and receive approval by the Executive Director, of a modification to the accounting plan that accounts for those additional waters prior to storing or using such supplies.
- (v) If Permittee seeks to modify its accounting plan, Permittee shall submit a request to the Executive Director for a determination of whether such modification requires a permit amendment, along with copies of the appropriate documents reflecting such modifications. Any modifications to the accounting plan that the Executive Director determines would change the permit terms must be submitted in the form of an application to amend the permit. If a permit amendment is required, Permittee shall not make any diversions pursuant to the modified accounting plan until a permit amendment is issued.
- (vi) Should Permittee fail to maintain the accounting plan, notify the Executive Director of any modifications to the accounting plan, or file an application to amend the Permit, Permittee shall immediately cease all diversions pursuant to this Permit until Permittee corrects the records, or files with the Executive Director the amended plan or, if necessary, application to amend the permit.

G. Monitoring and Data Availability

- (i) Monitoring. Upon issuance of this permit, Permittee shall:
 - (a) Implement a program to measure salinity on at least an hourly basis at both the West Bay @ Tripod and West Bay @ Shellfish Marker B;
 - (b) Implement a program to measure salinity on at least an

- hourly basis at a representative location approved by the Executive Director within the Colorado River delta; and
- (c) Implement a program to obtain salinity data approximately every thirty (30) days at three points along a transect proximate to Mad Island, or on at least an hourly basis at a single location proximate to Mad Island. Permittee shall notify the Executive Director prior to implementing such a program.

- (ii) **Data Availability**
Permittee shall maintain the data and analysis required pursuant to this Permit in electronic format and, except as may be restricted by other local, state, or federal law, make it available to the general public during normal business hours and to the Executive Director upon request.

H. Salinity Measurement Locations

The specific locations to be used for determining salinity as required by Special Conditions 6.C, 6.F, or 6.G are as follows:

- (i) West Bay @ Shellfish Marker B: Latitude 28.6206°N, Longitude -96.0503°W
- (ii) West Bay @ Tripod: Latitude 28.5960°N, Longitude -96.03960°W
- (iii) The Shellfish Marker B Transect is an imaginary line drawn between the West Bay @ Shellfish Marker B and West Bay @ Tripod.

I. Reopener

- (i) Consistent with and subject to the conditions stated in Texas Water Code §11.147(e-1), the Commission may adjust the conditions included in this permit to provide for protection of instream flows or beneficial inflows, if the Commission determines, through an expedited public comment process, that such an adjustment is appropriate to achieve compliance with applicable environmental flow standards adopted under Texas Water Code §11.1471. Nothing in Special Condition 6.C(v) shall limit the Commission's authority under this Special Condition 6.I.(i)
- (ii) Any voluntary adjustments made pursuant to Special Condition 6.C.(v) that increase the Seasonal Inflow Criteria in Table 2, Special Condition 6.C.(ii)(a), shall entitle Permittee to an appropriate credit as determined by the Commission or Executive Director for the benefits of such adjustments as required by Texas Water Code § 11.147 (e-2).

This permit is issued subject to all superior and senior water rights in the Colorado River Basin.

Permittee agrees to be bound by the terms, conditions, and provisions contained herein and such agreement is a condition precedent to the granting of this permit.

All other matters requested in the application which are not specifically granted by this permit are denied.

This permit is issued subject to the Rules of the Texas Commission on Environmental Quality and to the right of continuing supervision of State water resources exercised by the Commission.

For the Commission

Date Issued:

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 16, 2011

Ms. Lyn Clancy
Lyn Clancy
Lower Colorado River Authority
P.O. Box 220
Austin, Texas 78701

Re: LCRA; Permit Number 5731; Request for Information

Dear Ms. Clancy:

We have reviewed the proposed changes to the Executive Director's draft permit, which are included in the ALJ's recommended permit. For several of the proposed changes, we only need confirmation of our understanding of the proposed changes. For other proposed changes, we need additional information for clarification purposes. Therefore, please confirm the statements in items 1-7 below:

1. LCRA requests removal of diversion points 3.A.(ii), (iii), (iv) and (vi), being all diversion points associated with Certificate of Adjudication 14-5437 and the diversion point from the perimeter of Eagle Lake, authorized by Certificate of Adjudication 14-5475.
2. LCRA requests a reduction in the combined maximum diversion rate from 40,000 cfs to 10,000 cfs.
3. LCRA requests modification of language in Section 4. CONSERVATION, as proposed in the ALJ's recommended draft permit.
4. LCRA requests modification of language in Section 6. E. to remove requirements that the riparian management plan be incorporated into LCRA's water management plan and to specify that the plan is only applicable to public lands owned by LCRA.
5. LCRA requests modification of Section 6.B. for channel maintenance flows. Note that staff has proposed the following minor modifications to this language:

A qualifying channel maintenance flow event is defined as an event that begins with a flow of at least 27,000 cfs, as measured at Columbus (USGS Gage 08161000), Colorado River at Columbus, has a duration of 48 hours, and that includes the flows at or below 27,000 cfs at Columbus during that occur within the 48 hour period following the initial 27,000 cfs flow. If a qualifying channel maintenance flow event has not occurred within the last preceding 24 months, and has not been allowed to pass the diversion

~~points such a flow occurs, Permittee's diversions during the first 48 hours after the qualifying channel maintenance flow event has reached the diversion point shall not reduce flow past the streamflow below the applicable diversion point to less than the equivalent of 27,000 cfs at Columbus, adjusted. The equivalent flow at Columbus shall be determined in the accounting plan and include an adjustment for attenuation and other impacts between the Columbus gage and the diversion point. The accounting plan required by Special Conditions 6.F. of this permit shall include provisions establishing a mechanism for assessing compliance with this requirement applicable diversion point.~~

6. LCRA requests modification of the requirements for reservoir permitting and construction, as proposed in Special Condition 6.E. in the ALJ's recommended draft permit.
7. LCRA requests the addition of a reopener provision, as proposed in Special Condition 6.I.(i) in the ALJ's recommended draft permit.

For the remaining proposed changes in the ALJ's recommended draft permit, please provide the additional information requested in items 8-17 below:

8. An explanation for using only one level of instream flow values in Special Condition 6.A. when the study that is the basis for those values has two levels of instream flows.
9. Specific locational information for the following measurement points referenced in Special Conditions 6.C., 6.F., and 6.H.:
 - a. Shell Marker B (for both salinity monitoring instruments)
 - b. Shell Marker B Transect
 - c. West Bay Tripod (for both salinity monitoring instruments)
 - d. Confirm the above nomenclature for these sites. Information on the LCRA's water quality data monitoring web site indicates different names for these locations.
10. A more detailed explanation for changing MBHE IV volumetric amounts and seasonal distribution to the values included in the Seasonal Inflow Criteria in Special Condition 6.C.(ii)(a). This would include a detailed explanation for how these changed flows were developed and the basis for those changes.
11. An explanation of the basis for the Cumulative Salinity Departure (CSD) reset triggers included in Special Condition 6.C.(ii)(b)(3) and the basis for the calculation of the CSD included in Special Condition 6.F.(i)(e).
12. Confirm whether Special Condition 6.C.(iii) is intended to reflect that the Beneficial Inflow Criteria is considered to be satisfied for the next 24 hours if the salinity at the Shell Marker B Transect is 5 parts per thousand or less, or whether

the Beneficial Inflow Criteria is satisfied for the month in which this salinity condition occurs.

13. An explanation of the basis for the 6,000 cfs and 8,000 cfs trigger levels included in Special Condition 6.C.(iv) and explain how these values were developed.
14. An explanation for why more diversions are allowed under Special Condition 6.C.(iv) during times when firm customers have been asked to implement mandatory restrictions. It appears that diversions under this junior permit are allowed when senior diversions are curtailed.
15. The basis under Special Condition 6.C.(v)(e) for: a) limiting adjustments of the Seasonal Inflow Criteria to a percentage exceedance of 30% or greater, b) limiting adjustments to no more than 40,000 acre-feet on an annual basis, c) considering the months of March through June as a single period for purposes of the adjustment, and d) limitations on adjustments based on diversion rate and diversion amount.
16. An explanation for how the ten year limitation on adjustments to the Seasonal Inflow Criteria under Special Condition 6.C.(v)(f) would operate under a circumstance where a workplan submitted by the Colorado Lavaca stakeholders and approved by the Environmental Flows Advisory Group recommends a different time period.
17. Clarification for why an adjustment by TCEQ that increases the Seasonal Inflow Criteria pursuant to Special Condition 6.C.(v), even if LCRA agrees to the adjustment, would be considered to be a voluntary adjustment and entitle LCRA to a credit for the benefits of the adjustment under Special Condition 6.I.(ii).

Sincerely,

Robin Smith

Robin Smith
Attorney
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Texas Commission on Environmental Quality
MC-173
P. O. Box 13087
Austin TX 78753

cc: Attached mailing list
Kathy Alexander, Water Rights Permitting, TCEQ
Kellye Rila, Manager Water Rights Permitting, TCEQ

Mailing List
Lower Colorado River Authority
TCEQ Docket No. 2006-1819-WR
SOAH Docket No. 582-08-0689

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February 18, 2011

Via E-mail

Ms. Robin Smith, Attorney
Environmental Law Division, MC-173
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Re: SOAH Docket No. 582-08-0689; TCEQ Docket No. 2006-1819-WR;
Application of the Lower Colorado River Authority for Water Rights
Permit No. 5731

Dear Robin,

LCRA has reviewed your request for information regarding proposed changes to the Executive Director's draft permit, which are included in the ALJ's recommended permit. LCRA's responses to the request letter dated February 16, 2011, are provided below.

Request for Information #1: Please confirm that LCRA requests removal of diversion points 3.A.(ii), (iii), (iv) and (vi), being all diversion points associated with Certificate of Adjudication 14-5437 and the diversion point from the perimeter of Eagle Lake, authorized by Certificate of Adjudication 14-5475.

RESPONSE: Confirmed.

Request for Information #2: Please confirm that LCRA requests a reduction in the combined maximum diversion rate from 40,000 cfs to 10,000 cfs.

RESPONSE: Confirmed.

Request for Information #3: Please confirm that LCRA requests modification of language in Section 4. CONSERVATION, as proposed in the ALJ's recommended draft permit.

RESPONSE: Confirmed.

Request for Information #4: Please confirm that LCRA requests modification of language in Section 6. E. to remove requirements that the riparian management plan be incorporated into LCRA's water management plan and to specify that the plan is only applicable to public lands owned by LCRA.

RESPONSE: Confirmed.

Request for Information #5: Please confirm that LCRA requests modification of Section 6.B. for channel maintenance flows. Note that staff has proposed the following minor modifications to this language:

A qualifying channel maintenance flow event is defined as an event that begins with a flow of at least 27,000 cfs, as measured at Columbus (USGS Gage 081610003, Colorado River at Columbus, has a duration of 48 hours, and ~~that includes the flows at or below 27,000 cfs at Columbus during that occur~~ within the 48 hour period following the initial 27,000 cfs flow. If a qualifying channel maintenance flow event has not occurred within the last preceding 24 months, and ~~has not been allowed to pass the diversion points~~ such a flow occurs, Permittee's diversions ~~during the first 48 hours after the qualifying channel maintenance flow event has reached the diversion point~~ shall not reduce flow ~~past the~~ the streamflow below the applicable diversion point to less than the equivalent of 27,000 cfs at Columbus, ~~adjusted~~. The equivalent flow at Columbus shall be determined in the accounting plan and include an adjustment for attenuation ~~and other impacts between the Columbus gage and the diversion point~~. The accounting plan required by Special Conditions 6.F. of this permit shall include ~~requirement~~ applicable diversion point.

RESPONSE:

LCRA confirms that it requested modification of the Channel Maintenance flow provisions contained in the draft permit. LCRA notes that, upon careful review, it appears that TCEQ staff's proposed edits as set forth do not reflect all of staff's proposed changes as compared to the language that was proposed by the Settling Parties. We assume this was an editing oversight, but for the purposes of clarity, we have set forth below the full set of modifications that we understand TCEQ staff is proposing below:

A qualifying channel maintenance flow event is defined as an event that begins with a flow of at least 27,000 cfs, as measured at Columbus (USGS Gage 081610003), Colorado River at Columbus, has a duration of 48 hours, and that includes the flows at or below 27,000 cfs at Columbus during that occur within the 48 hour period following the initial 27,000 cfs flow. If a qualifying channel maintenance flow event has not occurred within the last preceding 24 months, and ~~has not been allowed to pass the diversion points~~ such a flow occurs, Permittee's diversions during the first 48 hours after the qualifying channel maintenance flow event has reached the diversion point shall not reduce flow past the streamflow below the applicable diversion point to less than the equivalent of 27,000 cfs at Columbus ~~adjusted~~. The equivalent flow at Columbus shall be determined in the accounting plan and include an adjustment for

~~attenuation and other impacts between the Columbus gage and the diversion point. The accounting plan required by Special Conditions 6.F. of this permit shall include provisions establishing a mechanism for assessing compliance with this requirement applicable diversion point.~~

LCRA has consulted with the Settling Parties and collectively identified two concerns with the staff's proposed changes. To achieve the desired intent of a channel maintenance requirement, the equivalent flow should be allowed to pass the diversion point in the preceding twenty-four months. Only requiring the flow to have passed the Columbus gage does not have this effect, given that all authorized diversion points under the permit are located downstream of Columbus. Further, the appropriate location to determine the equivalent channel maintenance flow is at the diversion points where water is going to be diverted, since the required Columbus flow is already established at 27,000cfs. To address these concerns, we have identified three specific changes to the language, as set forth below:

A qualifying channel maintenance flow event is defined as an event that begins with a flow of at least 27,000 cfs, as measured at USGS Gage 081610003, Colorado River at Columbus, has a duration of 48 hours, and includes flows below 27,000 cfs that occur within the 48 hour period following the initial 27,000 cfs flow. If a qualifying channel maintenance flow event has not occurred within the preceding 24 months, and has not been allowed to pass the diversion point such a flow occurs, Permittee's diversions during the first 48 hours after the qualifying channel maintenance flow event has reached the diversion point shall not reduce the streamflow below the applicable diversion point to less than the equivalent of 27,000 cfs at Columbus. The equivalent flow at Columbus each diversion point shall be determined in the accounting plan and include an adjustment for attenuation between the Columbus gage and the applicable diversion point.

Request for Information #6: Please confirm that LCRA requests modification of the requirements for reservoir permitting and construction, as proposed in Special Condition 6.E. in the ALJ's recommended draft permit.

RESPONSE: Confirmed.

Request for Information #7:

Please confirm that LCRA requests the addition of a reopener provision, as proposed in Special Condition 6.I.(i) in the ALJ's recommended draft permit.

RESPONSE: Confirmed.

Request for Information #8:

Please provide an explanation for using only one level of instream flow values in Special Condition 6.A. when the study that is the basis for those values has two levels of instream flows.

RESPONSE:

The study that is the basis for the instream flow values in Special Condition 6.A. includes three flow levels (subsistence, base-dry, and base-average) as compared to critical and target in prior studies. In order to mirror the approach in the TCEQ draft and provide the most protective flow level, the highest flow level, base-average, was selected.

Request for Information #9:

Please provide specific locational information for the following measurement points referenced in Special Conditions 6.C., 6.F., and 6.H.:

- a. Shell Marker B (for both salinity monitoring instruments)
- b. Shell Marker B Transect
- c. West Bay Tripod (for both salinity monitoring instruments)
- d. Confirm the above nomenclature for these sites. Information on the LCRA's water quality data monitoring web site indicates different names for these locations.

RESPONSE:

The nomenclature and latitude and longitude for LCRA's two monitoring sites in Matagorda Bay are provided below. A map depicting the location of the two sites is also provided under **Attachment A**. Over the years, nomenclature for these monitoring sites has occasionally changed for different applications (maps, databases, etc.). However, the specific location of each has not moved. The redundant instrumentation will be attached to the same platform at each location.

Site ID	Map ID	Water Quality ID	Site Name	X Coordinate	Y Coordinate
6985	190	Matagorda 7 SW	West Bay @ Shellfish Marker B	-96.050	28.621
6990	191	Matagorda 8 SSW	West Bay @ Tripod	-96.040	28.596

The "Shell Marker B Transect" is an imaginary line drawn between these two sites, as depicted on the map in **Attachment A**.

Request for Information #10:

Please provide a more detailed explanation for changing MBHE IV volumetric amounts and seasonal distribution to the values included in the Seasonal Inflow Criteria in Special Condition 6.C.(ii)(a). This would include a detailed explanation for how these changed flows were developed and the basis for those changes.

RESPONSE: See Attachment B.

Request for Information #11:

Please provide an explanation of the basis for the Cumulative Salinity Departure (CSD) reset triggers included in Special Condition 6.C.(ii)(b)(3) and the basis for the calculation of the CSD included in Special Condition 6.F.(i)(e).

RESPONSE: See Attachment C.

Request for Information #12:

Please confirm whether Special Condition 6.C.(iii) is intended to reflect that the Beneficial Inflow Criteria is considered to be satisfied for the next 24 hours if the salinity at the Shell Marker B Transect is 5 parts per thousand or less, or whether the Beneficial Inflow Criteria is satisfied for the month in which this salinity condition occurs.

RESPONSE:

Special Condition 6.C.(iii) is intended to allow the Beneficial Inflow Criteria to be considered satisfied for the next 24 hours (and not for the month in which the salinity condition occurs).

Request for Information #13:

Please provide an explanation of the basis for the 6,000 cfs and 8,000 cfs trigger levels included in Special Condition 6.C.(iv) and explain how these values were developed.

RESPONSE: See Attachment D.

Request for Information #14:

Please provide an explanation for why more diversions are allowed under Special Condition 6.C.(iv) during times when firm customers have been asked to implement mandatory restrictions. It appears that diversions under this junior permit are allowed when senior diversions are curtailed.

RESPONSE: See Attachment D. Nothing in the provision purports to, or is intended to, authorize diversions that would not be consistent with seniority of water rights.

Request for Information #15:

Please provide the basis under Special Condition 6.C.(v)(e) for: a) limiting adjustments of the Seasonal Inflow Criteria to a percentage exceedance of 30% or greater, b) limiting adjustments to no more than 40,000 acre-feet on an annual basis, c) considering the months of March through June as a single period for purposes of the adjustment, and d) limitations on adjustments based on diversion rate and diversion amount.

RESPONSE:

- (a) The experts working with and for LCRA and the Settling Parties agreed that a percentage exceedance of 30% or more was an appropriate triggering mechanism to warrant a re-evaluation of the seasonal inflow criteria, as such a departure might indicate that assumptions and analysis contained in the underlying studies may warrant further refinement.
- (b) Similar to the underlying basis for the limitation contained in Tex. Water Code §11.147(e-1) on the amount of adjustment that the Commission may make to permit conditions after adoption or modification of environmental flow standards, the intent of the 40,000-acre-foot limitation is to recognize that LCRA, like other water rights holders, needs a reasonable measure of certainty in its permit to effectively fund and develop a water supply project depending on the permit.
- (c) Although the monthly inflow volumes for April and May are higher than those for March and June, the overall salinity goal for these four months is the same (i.e. 12-15 ppt). Grouping those months for purposes of this provision provides additional protection for freshwater inflows during the critical spring inflow period of March-June by allowing the inflow totals for the entire period to be increased by 40,000 acre-feet if the Salinity Analysis supports it.
- (d) The experts working with and for LCRA and the Settling Parties agreed that, at these lower diversion rates and lower annual diversion amounts, if a substantial departure from the expected salinities were observed, it would not be the result of pumping activities by LCRA under this permit and that imposing additional requirements on LCRA under this permit would therefore be inappropriate. (Analysis of the proposed permit indicated that diversions on days when the pump rate exceeded 2500 cfs represented approximately 60% of the total volume that could be pumped under the permit. The annual volume trigger of 100,000 acre-feet represents less than half of the average annual river diversions under the proposed permit and is a small fraction of the 853,514 acre-feet per year that is authorized.)

Request for Information #16:

Please provide an explanation for how the ten year limitation on adjustments to the Seasonal Inflow Criteria under Special Condition 6.C.(v)(f) would operate under a circumstance where a workplan submitted by the Colorado Lavaca stakeholders and approved by the Environmental Flows Advisory Group recommends a different time period.

RESPONSE:

This provision does not purport to, and is not intended to, control the timing for adjustments implemented pursuant to Section 11.147 (e-1). The ten-year limitation on adjustments within Special Condition 6.C(v)(f) would not be affected by and would operate independent of any workplan developed by the Colorado/ Lavaca Bay and Basin Area Stakeholders pursuant to TEX. WATER CODE § 11.02362(p)(1) that might be funded and implemented on a different schedule. Since LCRA would take responsibility for funding and implementing the monitoring and analysis described in Special Condition 6.C(v)(a) on a ten-year recurring basis as contemplated by Special Condition 6.C(v)(b), the ten-year limitation on adjustments was considered appropriate (recognizing the limited circumstance identified by Special Condition 6.C(v)(c) that allows a shorter time period). Of course, the information developed by LCRA would be readily available for use and consideration in that process, as deemed appropriate by the stakeholders and those implementing the workplan. However, there is nothing about the ten-year limitation in Special Condition 6.C(v)(f) that would interfere with any other activities that might be implemented consistent with a workplan developed pursuant to TEX. WATER CODE § 11.02362(p). To the extent that adjustments to the environmental flow special conditions in the permit are prompted by TCEQ's adoption or modification of environmental flow standards, the ten-year limitation set forth in Special Condition 6.C(v)(f) would also not apply. LCRA recognizes that TCEQ's ability to modify environmental flow standards, and thus make adjustments under TEX. WATER CODE § 11.147(e-1), is limited to occurring no more frequently than once every ten years under TEX. WATER CODE § 11.1471(f) unless a more frequent review is contemplated by the work plan and deemed appropriate by TCEQ. As recognized, and discussed more fully in response to Question 17 below, LCRA understands the permit to allow LCRA to receive appropriate credit for any adjustments that might have already been made to the permit conditions as a result of the process contemplated by Special Condition 6.C(v), even if those occur on a schedule that differs from any adjustments that might be prompted by adoption or changes to the environmental flow standards and allowed under TEX. WATER CODE 11.147(e-1).

Request for Information #17:

Please provide clarification for why an adjustment by TCEQ that increases the Seasonal Inflow Criteria pursuant to Special Condition 6.C(v), even if LCRA agrees to the adjustment, would be considered to be a voluntary adjustment and entitle LCRA to a credit for the benefits of the adjustment under Special Condition 6.I(ii).

RESPONSE:

To the extent that adjustments are made to the seasonal bay inflow criteria under Special Condition 6.C(v), Special Condition 6.I(ii) provides that TCEQ will give LCRA an "appropriate credit" pursuant to Tex. Water Code §11.147(e-2). Whether such credit is "appropriate" is a determination to be made by TCEQ. The proposed permit language simply acknowledges that LCRA has agreed to make some additional water available to help meet environmental flow needs under certain circumstances. Consistent with the intent and language of TEX. WATER CODE §11.147(e-2), Special Condition 6.I(ii) acknowledges that credit may be appropriate because the result is the same as if LCRA were to later apply for and obtain an amendment to this permit to


Ms. Robin Smith
February 18, 2011
Page 8 of 16

make the exact same types of changes contemplated by Special Condition 6.C(v) – basically, LCRA would be entitled to an appropriate credit pursuant to TEX. WATER CODE §11.147(e-2) because any increase in the seasonal flow criteria would amount to a change from municipal, industrial, and irrigation use to only being available to meet freshwater inflow needs.

Please don't hesitate to call if you have any further questions. In addition, we would welcome the opportunity to meet with staff in the very near future to discuss any of these matters at whatever detail is needed to help move this matter towards resolution in advance of the April 20th deadline established by the Commissioners. I can be reached at (512) 473-3378.

I look forward to hearing from you.

Sincerely,


Lyn E. Clancy
Managing Associate General Counsel

Attachment(s)

cc: Kathy Alexander, Water Rights Permitting, TCEQ
Kellye Rila, Manager, Water Rights Permitting, TCEQ
Blas Coy, Jr., Office of Public Interest Counsel, TCEQ
Colette Barron Bradsby, Counsel for Texas Parks & Wildlife Department
Robin Melvin, Counsel for Coastal Conservation Association
Mary W. Carter, Counsel for Matagorda Bay Foundation
Myron J. Hess, Counsel for National Wildlife Foundation
Marisa Perales, Counsel for Sierra Club
Meitra Farhadi, Counsel for City of Austin
Ross Crow, Counsel for City of Austin
Carolyn Ahrens, Counsel for STP Nuclear Operating Company

ATTACHMENT A - Related to RFI #9



ATTACHMENT B – RESPONSE TO RFI #10
Development of Seasonal Inflow Criteria

Among the studies performed to assess the viability of the LCRA-SAWS Water Project was the Matagorda Bay Health Evaluation (MBHE). That study used a habitat-based approach to assess the relationship between freshwater inflow and the ecological condition of the Eastern Arm of Matagorda Bay, where the Colorado River discharges into the bay. The study resulted in a regime of inflows ranging from Threshold, up to inflows designed to produce selected habitat within the Colorado River Delta and good or selected habitat over a Design Area extending out into the bay. Each inflow level has a corresponding recommended achievement frequency to provide protective inflows to the bay while recognizing substantial natural variability in the bay system.

The MBHE concept is intended to protect two 90-day seasonal pulses, and allow inflows in other months to be at lower, but still significant, levels. The highest seasonal inflows (MBHE-4) in the MBHE inflow regime have a recommended achievement frequency of 35 percent, and are the basis of the proposed seasonal bay inflow conditions for the unappropriated flows permit. The MBHE-4 seasonal inflows are as follows:

	Total inflow (acre-feet)	Equivalent inflow per 30 days (acre-feet)	Equivalent Design Area Salinity (ppt)
Spring – 90 consecutive days anytime from January to July	433,200	144,400	11.6 – 14.4
Fall – 90 consecutive days anytime from August to December	307,800	102,600	14.4 – 17.2
Remaining 6 months	399,000	66,500	18.0 – 20.6
Annual / Average	1,140,000	95,000	

LCRA, working with input from the Conservation Alignment and Texas Parks and Wildlife, set out to develop bay inflow criteria based on MBHE-4 seasonal inflows that could be included as a permit condition. The Conservation Alignment and TPWD had concerns that an approach which allowed the bulk of the Spring or Fall seasonal inflow requirements to be met very early or very late in the specified seasonal windows could result in inadequate protection during the remainder of the season and also could result, through some combinations, in unduly adverse conditions during the summer. Thus the parties agreed to “fix” the seasons so that the largest “spring” pulse would be protected between the months of March through June, and a second pulse would be protected between July and October. By making the “season” for the spring pulse last four months, rather than three, there is a cushion that addresses uncertainty as to whether the ideal spring pulse should occur from March to May or April to June. Furthermore, the additional month at the higher flow targets in both the March to June and July to October periods ensures that higher criteria (as compared to the “remaining” months in the MHBE concept) are in place during the hottest summer months.

Rather than specifying an achievement frequency that must be met under the permit, seasonal criteria were developed to accomplish the same underlying goal (of not reducing the likelihood of achieving desired inflows and bay conditions) by preventing pumping unless the inflows/salinity were consistent with bay conditions at least as good as MBHE-4 would provide. A key goal of LCRA, the Conservation Alignment, and TPWD was also to address the operational challenges of the 'catch and release' approach used in the ED's Draft Permit.

The operational approach proposed in the Settlement Draft ("Operational Approach") adapts the MBHE-4 seasonal standard into criteria that are implementable in a permit by using a rolling 60-day inflow total as the bay criteria. Under the Operational Approach, the seasonal calendar is fixed to specific months rather than the broader window of months allowed in the MBHE regime. The values chosen for the Operational Approach were agreed upon in order to provide a similar level of protection as would be afforded under a strict MBHE-4 criteria (that would have to rely on passing either the entire seasonal target prior to diverting, or would have to rely on a "catch and release" mechanism). As a result, the values used in the Operational Approach are based on a conservative assumption of inflows for the immediately preceding 30 days in order to avoid impacting the frequencies with which the 90-day MBHE inflows could be achieved if no diversions were being made under this permit. By using a rolling 60-day lookback value, the Operational Approach eliminates the situation where LCRA might be required to wait to pump until an entire 90-day seasonal inflow volume has reached the bay, and then, once that volume is reached, pump all remaining water for the rest of the season at very high pumping rates.

Seasonal Inflow Criteria under Operational Approach

	60-day inflow criteria (acre-feet)	Equivalent inflow per 30 days (acre-feet)	Equivalent Design Area Salinity (ppt)
March, June	365,000	182,500	9.7 – 12.6
April, May	400,000	200,000	9.0 – 11.8
July – October	260,000	130,000	12.5 – 15.3
November – February	190,000	95,000	15.0 – 17.8
Average	277,500	138,750	

For the March through June period, a 60-day inflow criteria of 365,000 acre-feet was found to result in inflows reaching the bay such that the likelihood of achieving the MBHE-4 "spring" 90-day pulse (of 433,200 acre-feet) during that period was essentially unchanged as compared to a no permit model. Of equal importance, when the 60-day criteria is satisfied and pumping could occur, the predicted salinity over the design area would be at or below the low end of the already protective ranges contemplated by MBHE for a spring pulse. The Conservation Alignment and TPWD also requested a higher level of inflow protection in the months of April and May, when inflows have historically been the highest. The Setting Parties agreed to use a higher 60-day inflow criteria of 400,000 acre-feet for those two months.

For the July to October period, a 60-day inflow criteria of 260,000 acre-feet was found to protect bay inflows such that the likelihood of achieving the MBHE-4 "fall" 90-day pulse (of 307,800 acre-feet) during that period was essentially unchanged as compared to a no permit model. When the 60-day criteria is satisfied and pumping could occur, the predicted salinity over the design area would be at or below the low end of the already protective ranges contemplated by MBHE for a Fall pulse.

For the period from November through February, the 60-day inflow criteria was set to 190,000 acre-feet, which is a level equivalent to the average annual inflow level under MBHE-4 of 95,000 acre-feet per month. The level of inflows protected would be sufficient such that diversions under the permit would not raise the average salinity to levels which were higher than the annual average sought to be protected under the MBHE concept (even though this is the lowest seasonal inflow criteria for the entire year).

When the MBHE-4 90-day seasonal inflow values and the Operational Approach 60-day inflow values are reduced to 30-day inflow equivalents (for purposes of comparing the Operational Approach and MBHE-4), the average inflow criteria under the Operational Approach are approximately 40% higher—138,750 AF/30 days as compared to the MBHE-4 average of 95,000 AF/30 days. While this represents a potentially higher level of protection than the MBHE concept might call for, LCRA was willing to accept this criteria because of the operational efficiency afforded by this approach as opposed to "catch and release." The operational efficiency also resulted in an ability to reduce the maximum diversion rate from 40,000 cfs to 10,000 cfs without significantly impacting the reliability of water supply.

**ATTACHMENT C - RESPONSE TO RFI #11
Development of Significant Drought Criteria**

In response to concerns expressed by the Conservation Alignment and TPWD that special measures may be warranted to allow the bay to recover from a significant drought, the parties developed a metric to identify droughts similar to those experienced in the 1950s, 1963-65, 1967-68, and 1989-91. This metric is based on measured salinity at existing LCRA monitoring locations in Matagorda Bay and incorporates both intensity and duration. When the metric identifies bay conditions similar to the above mentioned droughts, special limits on pumping are triggered.

The metric, known as "Cumulative Salinity Departure" (CSD) would apply as follows:

- If average salinity is greater than 23ppt on a given day, the difference between the measured salinity and 23ppt is added to the running total of CSD.
- If salinity is less than 23ppt, the difference is subtracted from the running total of CSD.
- If the running total of CSD exceeds 2200 (a value that was exceeded in the simulation for each of the above-mentioned significant droughts), additional pumping limitations apply:
 - Pumping is not allowed under the rolling 60-day seasonal inflow criteria.
 - During very high flow events (greater than 6000 cfs), some diversions might still be allowed.
- The running total of CSD would be reset to zero as a result of certain inflow or salinity events including:
 - Salinity average of 15ppt or less over a 90-day period;
 - Inflows greater than 430,000 acre-feet in a 90-day period that ends sometime between March and October; or greater than 410,000 acre-feet in a 90-day period ending between November and February;
 - Inflows greater than 310,000 acre-feet in each of two consecutive 90-day periods.

Today, LCRA monitors salinity in Matagorda Bay at two locations on an hourly basis. This data is available at <http://waterquality.lcra.org>. Moreover, inflows to Matagorda Bay from the Colorado River are tracked on a monthly basis based on river flows at the Bay City gage. This information is available at http://www.lcra.org/water/conditions/river_report.html.

Basis for the calculation of CSD and reset criteria.

As discussed briefly above, the CSD metric is intended to put additional limitations on river diversions when bay conditions are similar to those experienced in a few historic droughts that are generally thought of as significant droughts. By accumulating CSD in the manner described above when salinity is greater than 23ppt, when historical records were evaluated, only the generally recognized significant droughts reached CSD levels above 2200. Thus the parties agreed, for purposes of inflow criteria under this permit, to consider a future drought as significant if CSD exceeded 2200. The Conservation Alignment and TPWD had concerns that the seasonal inflow criteria alone might not be protective enough in a significant drought—that during such an event, even if the seasonal inflow criteria was met, the bay condition might not respond in a manner that would otherwise be expected based on the level of inflows. In order to

Ms. Robin Smith
February 18, 2011
Page 14 of 16

address this concern, the parties agreed to limit pumping based on the seasonal inflow criteria until a reset event occurred. The reset events were selected based on inflows or salinities that are indicative of the highest ("selected") bay condition over a full three-month season, or 6 months of "good to selected" conditions. The difference in 90-day flow values between the winter months and the remainder of the year is in recognition of seasonal variations whereby less inflow is generally needed during the winter to achieve the same response to bay salinity.

ATTACHMENT D - RESPONSE TO RFI ## 13-14
Development of 5731 High-Flow Scalping Criteria

Basis of 6000 cfs and 8000 cfs trigger levels in High-Flow Scalping Criteria

Under Special Condition 6.C.(iv), High-Flow Scalping, diversions of flow above 6000 cfs are allowed under certain circumstances. This value was selected based on a review of historic Colorado River inflows to Matagorda Bay, and observed salinity values. From 2001 to 2009, 26 events were observed with daily inflows greater than 5000 cfs in which the seasonal 60-day inflow criterion was not satisfied on that particular day. For more than 80 percent of those events (21 of 26 events), the observed salinity in Matagorda Bay dropped below 12 ppt within one or two days of flow going past the Bay City gage (and below 10 ppt for 16 of the 26 events). Thus in the vast majority of events, the salinity dropped to levels even lower than the 12-15ppt salinity condition associated with the highest seasonal (spring pulse) criteria. The parties agreed that if instantaneous flows are above a certain level, diversion of a percentage of the remaining flow would not impair the bay condition. By setting the threshold slightly higher, at 6000 cfs, the flow level is approximately equal to the 90th percentile of historical flows, and of the days that 6000 cfs was exceeded, in the vast majority of them, the seasonal inflow criteria was already satisfied. As a result, while the High-Flow Scalping can provide some significant opportunities to divert, on a long-term basis, the seasonal inflow criteria remains the main determinant of the ability to divert under the proposed permit. It is also worth noting that 6000 cfs is approximately four-times the maximum instream flow requirement. (Base-average is 1512 cfs in June.) The 8000 cfs two-day pulse requirement was included to ensure that diversions under the High-Flow Scalping Criteria did not affect the frequency of these high-flow pulses that are recommended to occur roughly two times every three years. These pulses serve various ecological functions related to habitat, nutrient exchange, sediment transport, among others, as described in more detail in the report, "Lower Colorado River, Texas—Instream Flow Guidelines." (Bio-West, Inc. March 31, 2008.)

Discussion of varying diversion amount under High Flow Scalping dependent on the bay and water supply condition.

Diversions under this permit are not allowed at the expense of senior diversions. The inclusion of varying levels of diversion depending upon the water supply situation (and bay condition) is intended to reflect a balanced approach of looking at the needs for water supply and the environment.

A greater amount of diversions are allowed under High-Flow Scalping in periods when firm customers have been *asked* to implement mandatory water use restrictions under their drought contingency plans. This drought response stage currently occurs when the combined storage in LCRA's water supply reservoirs is below 45 percent. This request is *not* the same as the implementation of a mandatory pro-rata curtailment of firm customers by LCRA (which currently would be triggered if combined storage was below 30 percent and additional criteria related to the drought intensity and duration were met). Nor would it require that senior water rights be impacted. The analysis underlying the proposed permit assumed that firm demands

under existing water rights were satisfied to the maximum extent. Nonetheless, when LCRA requests that customers such as municipalities throughout Central Texas implement mandatory water use restrictions, LCRA's customers and end-users respond and save water while facing some hardships (as clearly evidenced in 2009). When the water supply condition is such that LCRA is not requesting the implementation of mandatory restrictions, it is fair to say that the water supply condition is not as critical. Thus although diversions of as much as 60% of the flow greater than 6000 cfs are not expected to materially impact the bay condition, by limiting such diversions to times in which the water supply condition is more stressed, the parties have sought to strike a balance between water supply and a more conservative level of protection for the bay. The table in Special Condition 6.C.(iv) represents four scenarios to cover the spectrum in which the bay condition and water supply condition may be the same (both good or bad), or one may be in better relative shape than the other. By varying diversion levels depending on the combination of conditions, the proposed permit balances the needs of water supply and bay inflows consistent with TEX. WATER CODE § 11.147.